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10/057,991	01/29/2002	Doron Handelman	1999/4	3144

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EXAMINER	
CURS, NATHAN M	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/057,991	HANDELMAN, DORON	
	Examiner	Art Unit	
	Nathan Curs	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23-31 and 33-46* is/are rejected.

7)☒ Claim(s) *32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/05,5/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 23, 24, 27, 28, 35, 38-40, 43, 45 and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Peng et al. ("Peng") ("Distributed wavelength assignment protocols with priority for WDM all-optical networks"; Peng et al.; Ninth International Conference on Computer Communications and Networks, 2000; 16-18 Oct. 2000; Pages: 625-630).

Regarding claim 23, Peng discloses An optical packet switching method for switching inputted optical packets over NW wavelengths, the inputted optical packets comprising optical packets having different attributes of a characteristic based on delay sensitivity, where NW is an integer greater than one (page 625, col. 1 and 2 and pages 626-627, section 3, paragraphs 1-3), the method comprising: grouping the NW wavelengths into KG groups of wavelengths according to the different attributes of the characteristic based on delay sensitivity so that each of the KG groups of wavelengths is allocated to optical packets having a common delay sensitivity level which is different from a delay sensitivity level of other optical packets, where KG is an integer greater than one (pages 626-627, section 3, paragraphs 1-3, where application specific priority levels indicates assigning – or grouping – packets by different priority levels, with the different priority levels assigned to specific wavelengths, and the high priority levels

correspond to delay sensitive applications); and switching each one inputted optical packet over a wavelength having an available transmission resource selected from among wavelengths in one of said KG groups of wavelengths that is matched to the one inputted optical packet by correspondence of a delay sensitivity level (pages 626-627, section 2 and section 3).

Regarding claim 24, Peng discloses the method according to claim 23 and wherein said grouping comprises allocating more wavelengths to delay sensitive optical packets than to delay insensitive optical packets (page 627, section 3, paragraph 4).

Regarding claim 27, Peng discloses the method according to claim 23 and wherein: the optical packets having different attributes of a characteristic based on delay sensitivity also comprise optical packets having different attributes of a characteristic based on optical packet bit-rate range; the grouping comprises grouping the NW wavelengths into KG groups of wavelengths both according to the different attributes of the characteristic based on delay sensitivity and according to the different attributes of the characteristic based on optical packet bit-rate range so that each of the KG groups of wavelengths is allocated to optical packets having both a common delay sensitivity level and a common bit-rate range which are different from at least one of the following: a delay sensitivity level of other optical packets; and a bit-rate range of other optical packets; and the switching comprises switching each one inputted optical packet over a wavelength having an available transmission resource selected from among wavelengths in one of said KG groups of wavelengths that is matched to the one, inputted optical packet by correspondence of both a delay sensitivity level and a bit-rate range (page 629, cols. 1 and 2, section 5.2, where "throughput" corresponds to bit-rate).

Regarding claim 28, Peng discloses the method according to claim 23 and wherein: the optical packets having different attributes of a characteristic based on delay sensitivity also comprise optical packets having different attributes of a characteristic based on optical packet

service level (page 625, col. 1 and 2 and pages 626-627, section 3, paragraphs 1-3, where delay sensitivity and service level, or priority level, go hand-in-hand in Peng); the grouping comprises grouping the NW wavelengths into KG groups of wavelengths both according to the different attributes of the characteristic based on delay sensitivity and according to the different attributes of the characteristic based on optical packet service level so that each of the KG groups of wavelengths is allocated to optical packets having both a common delay sensitivity level and a common service level which are different from at least one of the following: a delay sensitivity level of other optical packets; and a service level of other optical packets (pages 626-627, section 3, paragraphs 1-3, where application specific priority levels indicates assigning – or grouping – packets by different priority levels, with the different priority levels assigned to specific wavelengths, and the high priority levels correspond to delay sensitive applications); and the switching comprises switching each one inputted optical packet over a wavelength having an available transmission resource selected from among wavelengths in one of said KG groups of wavelengths that is matched to the one inputted optical packet by correspondence of both a delay sensitivity level and an optical packet service level (pages 626-627, section 2 and section 3).

Regarding claim 35, Peng discloses an optical packet switching method for switching inputted optical packets over NW wavelengths, the inputted optical packets comprising optical packets having different attributes of a characteristic based on optical packet carrier wavelength priority, where NW is an integer greater than one (page 625, col. 1 and 2 and pages 626-627, section 3, paragraphs 1-3), the method comprising: grouping the NW wavelengths into KG groups of wavelengths according to the different attributes of the characteristic based on optical packet carrier wavelength priority so that each of the KG groups of wavelengths comprises wavelengths having a common priority which is different from a priority of wavelengths in other

groups, where KG is an integer greater than one and the common priority comprises a priority with respect to at least one of the following: wavelength conversion; susceptibility to interference; and congestion level of carried optical packets (pages 626-627, section 3, paragraphs 1-3, where application specific priority levels indicates assigning – or grouping – packets by different priority levels, with the different priority levels assigned to specific wavelengths, and the priority levels hierarchically corresponding to congestion immunity); and switching each one inputted optical packet over a wavelength having an available transmission resource selected from among wavelengths in one of said KG groups of wavelengths that is matched to the one inputted optical packet by correspondence of an attribute of the characteristic based on optical packet carrier wavelength priority (pages 626-627, section 2 and section 3).

Regarding claim 38, Peng discloses an optical packet switching method for switching inputted optical packets over NW wavelengths, the inputted optical packets comprising optical packets having different attributes of a characteristic based on optical packet service level, where NW is an integer greater than one (page 625, col. 1 and 2 and pages 626-627, section 3, paragraphs 1-3, where priority levels for applications reads on service levels), the method comprising: grouping the NW wavelengths into KG groups of wavelengths according to the different attributes of the characteristic based on optical packet service level so that each of the KG groups of wavelengths is allocated to optical packets provided at a common service level which is different from a service level of other optical packets, where KG is an integer greater than one (pages 626-627, section 3, paragraphs 1-3, where application specific priority levels indicates assigning – or grouping – packets by different priority levels, with the different priority levels assigned to specific wavelengths, and the high priority levels corresponding to high priority services); and switching each one inputted optical packet over a wavelength having an

available transmission resource selected from among wavelengths in one of said KG groups of wavelengths that is matched to the one inputted optical packet by correspondence of an optical packet service level (pages 626-627, section 2 and section 3).

Regarding claim 39, Peng discloses the method according to claim 38 and wherein said grouping comprises allocating a different number of wavelengths to inputted optical packets provided at different service levels (pages 626-627, section 3, paragraphs 1-3, where application specific priority levels indicates assigning – or grouping – packets by different priority levels, with the different priority levels assigned to specific wavelengths).

Regarding claim 40, Peng discloses the method according to claim 38 and wherein said grouping comprises allocating wavelengths which provide different transmission conditions to inputted optical packets provided at different service levels (pages 626-627, section 3, paragraphs 1-3, where application specific priority levels indicate assigning packets at high service levels better transmission conditions than packets at low priority levels).

Regarding claim 43, Peng discloses an optical packet switch for switching inputted optical packets over NW wavelengths, the inputted optical packets comprising optical packets having different attributes of a characteristic based on delay sensitivity, where NW is an integer greater than one (page 625, col. 1 and 2 and pages 626-627, section 3, paragraphs 1-3), the optical packet switch comprising: a switching fabric; and a switching/routing control unit operatively associated with the switching fabric and operative to control the switching fabric for switching each one inputted optical packet over a wavelength having an available transmission resource selected from among wavelengths in one of KG groups of wavelengths, where KG is an integer greater than one (pages 626-627, section 2 and section 3), the KG groups of wavelengths are formed by grouping the NW wavelengths according to the different attributes of the characteristic based on delay sensitivity so that each of the KG groups of wavelengths is

allocated to optical packets having a common delay sensitivity level which is different from a delay sensitivity level of other optical packets, and said one of KG groups of wavelengths is matched to the one inputted optical packet by correspondence of a delay sensitivity level (pages 626-627, section 3, paragraphs 1-3, where application specific priority levels indicates assigning – or grouping – packets by different priority levels, with the different priority levels assigned to specific wavelengths, and the high priority levels correspond to delay sensitive applications).

Regarding claim 45, Peng discloses an optical packet switch for switching inputted optical packets over NW wavelengths, the inputted optical packets comprising optical packets having different attributes of a characteristic based on optical packet carrier wavelength priority, where NW is an integer greater than one (page 625, col. 1 and 2 and pages 626-627, section 3, paragraphs 1-3), the optical packet switch comprising: a switching fabric; and a switching/routing control unit operatively associated with the switching fabric and operative to control the switching fabric for switching each one inputted optical packet over a wavelength having an available transmission resource selected from among wavelengths in one of KG groups of wavelengths, where KG is an integer greater than one (pages 626-627, section 2 and section 3), the KG groups of wavelengths are formed by grouping the NW wavelengths according to the different attributes of the characteristic based on optical packet carrier wavelength priority so that each of the KG groups of wavelengths comprises wavelengths having a common priority which is different from a priority of wavelengths in other groups, said common priority comprising a priority with respect to at least one of the following: wavelength conversion; susceptibility to interference; and congestion level of carried optical packets, and said one of KG groups of wavelengths is matched to the one inputted optical packet by correspondence of an attribute of the characteristic based on optical packet carrier wavelength priority (pages 626-627, section 3, paragraphs 1-3, where application specific priority levels

indicates assigning – or grouping – packets by different priority levels, with the different priority levels assigned to specific wavelengths, and the priority levels hierarchically corresponding to congestion immunity).

Regarding claim 46, Peng discloses an optical packet switch for switching inputted optical packets over NW wavelengths, the inputted optical packets comprising optical packets having different attributes of a characteristic based on optical packet service level, where NW is an integer greater than one (page 625, col. 1 and 2 and pages 626-627, section 3, paragraphs 1-3, where priority levels for applications reads on service levels), the optical packet switch comprising: a switching fabric; and a switching/routing control unit operatively associated with the switching fabric and operative to control the switching fabric for switching each one inputted optical packet over a wavelength having an available transmission resource selected from among wavelengths in one of KG groups of wavelengths, where KG is an integer greater than one (pages 626-627, section 2 and section 3), the KG groups of wavelengths are formed by grouping the NW wavelengths according to the different attributes of the characteristic based on optical packet service level so that each of the KG groups of wavelengths is allocated to optical packets provided at a common service level which is different from a service level of other optical packets, and said one of KG groups of wavelengths is matched to the one inputted optical packet by correspondence of an optical packet service level (pages 626-627, section 3, paragraphs 1-3, where application specific priority levels indicates assigning – or grouping – packets by different priority levels, with the different priority levels assigned to specific wavelengths, and the high priority levels corresponding to high priority services).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 25, 26, 36, 37, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peng ("Distributed wavelength assignment protocols with priority for WDM all-optical networks"; Peng et al.; Ninth International Conference on Computer Communications and Networks, 2000; 16-18 Oct. 2000; Pages: 625-630).

Claims 25, 26, 36, 37, 41 and 42, Peng discloses the method according to claims 23, 35 and 38. Peng discloses protocol independence and WDM (page 625, abstract), and packet-based transmission (page 626-627, section 3, and thus discloses packets-over-WDM), but does not explicitly disclose that the optical packets comprise Internet Protocol (IP) packets. However, Examiner takes official notice that IP packets are well known in the art for packet-based communication. Therefore, since Peng is protocol independent, it would have been obvious to one of ordinary skill in the art at the time of the invention that the packets used in the system of Peng could be IP packets.

5. Claims 29, 30, 33, 34 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milton et al. ("Milton") (US Patent No. 6892032).

Regarding claims 29, 33 and 34, Milton discloses an optical switching method for switching inputted optical signals over NW wavelengths, the inputted optical signals comprising optical signals having different attributes of a characteristic based on optical carrier wavelength band, where NW is an integer greater than one (col. 2, line 14 to col. 3, line 10), the method comprising: grouping the NW wavelengths into KG groups of wavelengths according to the

different attributes of the characteristic based on optical carrier wavelength band so that each of the KG groups of wavelengths is allocated to optical signals that are provided at a common wavelength band which is different from a wavelength band of other optical signals, where the common wavelength band comprises a plurality of separate optical channels and KG is an integer greater than one (col. 4, line 28 to col. 5, line 61); and switching each one inputted optical signal over a wavelength having an available transmission resource selected from among wavelengths in one of said KG groups of wavelengths that is matched to the one inputted optical signal by correspondence of a wavelength band (fig. 4 and col. 5, line 62 to col. 6, line 25). Milton discloses protocol and bit-rate independence (col. 2, lines 34-40) and WDM (fig. 2), but does not explicitly disclose IP packet transmission. However, Examiner takes official notice that IP packets are well known in the art for packet-based communication. Therefore, since the switching system of Milton is protocol and bit-rate independent, it would have been obvious to one of ordinary skill in the art at the time of the invention that IP packets could be transmitted and switched in Milton.

Regarding claim 30, Milton discloses the method according to claim 29 and wherein the common wavelength band comprises a wavelength band of an order of magnitude of tens nanometers (nm) around one of the following wavelengths: 780nm; 980nm; 1310nm; 1480nm; 1510nm; 1550nm; and 1620nm (col. 4, lines 38-63).

Regarding claim 44, Milton discloses an optical switch for switching inputted optical signals over NW wavelengths, the inputted optical packets comprising optical signals having different attributes of a characteristic based on optical carrier wavelength band, where NW is an integer greater than one (col. 2, line 14 to col. 3, line 10), the optical switch comprising: a switching fabric; and a switching/routing control unit operatively associated with the switching fabric and operative to control the switching fabric for switching each one inputted optical signal

over a wavelength having an available transmission resource selected from among wavelengths in one of KG groups of wavelengths, where KG is an integer greater than one (fig. 4 and col. 5, line 62 to col. 6, line 25), the KG groups of wavelengths are formed by grouping the NW wavelengths according to the different attributes of the characteristic based on optical carrier wavelength band so that each of the KG groups of wavelengths is allocated to optical signals that are provided at a common wavelength band which is different from a wavelength band of other optical signals, the common wavelength band comprising a plurality of separate optical channels, and said one of KG groups of wavelengths is matched to the one inputted optical signal by correspondence of a wavelength band (col. 4, line 28 to col. 5, line 61). Milton discloses protocol and bit-rate independence (col. 2, lines 34-40), but does not explicitly disclose packet transmission. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that packets could be transmitted and switched in Milton, since the switching system is protocol and bit-rate independent.

6. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Milton et al. ("Milton") (US Patent No. 6892032) in view of Kartalopoulos ("Introduction to DWDM Technology", IEEE Press, 2000; pages 56-57).

Regarding claim 31, Milton discloses the method according to claim 29, but does not disclose that the common wavelength band comprises one of the S, C or L bands. Kartalopoulos discloses characteristics of the S, C and L bands (page 56-57, section 3.19). It would have been obvious to one of ordinary skill in the art at the time of the invention that the common wavelength band would comprise one of the S, C or L bands, since each of these low-loss regions have been characterized for compatibility purposes with conventional optical system components including fiber, as taught by Kartalopoulos.

Allowable Subject Matter

7. Claim 32 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments of 21 December 2005 have been considered but are moot in view of the new ground(s) of rejection.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

10. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (800) 786-9199.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pairdirect.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leslie Pascal

LESLIE PASCAL
PRIMARY EXAMINER